Report on International Telecommunications Markets 1997-1998

Prepared for Senator Ernest F. Hollings
Committee on Commerce, Science, and Transportation
United States Senate

Federal Communications Commission
International Bureau
December 7, 1998

FCC Report on International Telecommunications
1997-1998

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Introduction

This report includes specific information requested by Senator Ernest F. Hollings and the staff of the U.S. Senate Committee on Commerce, Science, and Transportation (Commerce Committee). The report details changes that have taken place in international telecommunications markets in the past year, for wireline telecommunications and satellite services. The report is also intended to be used as a baseline to measure future developments in international telecommunications markets.

As the information below indicates, international calling prices have declined significantly over the last year, many countries are opening their markets to competition by foreign telecommunications and satellite companies, and a number of other developments are working to lower prices and increase international calling volumes. We note, of course, that much of the progress is not solely attributable to the WTO Agreement. In addition to the WTO Agreement, Commission policies such as settlement rate reform have played an important part, along with other political and economic forces over which the Commission has no control.

I. International Telecommunications Services

A. Decline in international pricing for five largest international traffic routes

The following table details the three largest U.S. carriers' best per-minute rates available to residential subscribers in 1997 and 1998 on the five international routes with the highest calling volumes. The table also indicates the size of the rate decline from 1997 to 1998. The table indicates that rates charged by all three carriers have declined on the U.S.-Mexico route and the U.S.-Japan route. There have also been reductions by at least one carrier on each of the other routes.

Sprint best rate available 24 hours/7 days*

	Nov. 1997	Nov. 1998	Decrease
Canada	$0.20	$0.10	50%
Mexico	.70	.47	33
Germany	.55	.27	51
India	1.28	.78	39
Japan	.67	.48	28

*1997 data is average of peak/off peak rates

AT&T best rate available 24 hours/7 days

	Nov. 1997	Nov. 1998	Decrease
Canada	$0.12	$0.12	0%
Mexico	.49	.44	10
Germany	.35	.29	6
India	.80	.75	6
Japan	.67	.48	28

MCI WorldCom generally available "best" rates

	Nov. 1997	Nov. 1998	Decrease
Canada	$0.12	$0.12	0%
Mexico	.59	.44	25
Germany	.35	.29	6
India	.80	.80	0
Japan	.48	.35	27

B. Countries where majority-owned U.S. companies are allowed to provide facilities-based service to originate or terminate international calls

The following countries allow foreign entities to own and control facilities used to provide basic telecommunications service:

Europe
Austria, Belgium, Denmark, Finland, France, Germany, Italy, Iceland, Luxembourg, Netherlands, Spain, Sweden, Switzerland, United Kingdom

Asia Pacific
Japan, Australia, New Zealand

Latin America
Columbia, El Salvador, Guatemala, Chile

North America
Mexico

Caribbean
Dominican Republic

C. Number of new entrants providing facilities-based service in top 10 teledensity countries, excluding the United States (June 1998)

The list below details the number of non-incumbent new entrants that provide service in a foreign market using facilities owned and controlled by the new entrant. Markets included in the list are the top ten markets as measured by the number of telephone lines per inhabitant.

Sweden	14
Switzerland	23
Denmark	12
Canada	15
Luxembourg	2
Iceland	1
France	33
Finland	8
Hong Kong	4
Netherlands	26

Source: Telegeography, Inc, *New International Carriers 1998*

D. U.S. investment in foreign countries and number of foreign carrier applications to provide service in the United States

In most regions of the world, U.S. carriers have made substantial equity investments in telecommunications infrastructure.

MCI WorldCom, Global Crossing, and Viatel each plan to take advantage of European liberalization. Each has pledged to invest more than $700 million to build out pan-European fiber optic networks. MCI WorldCom currently has local network facilities in London, Brussels, Amsterdam, Paris, and Frankfurt, with five additional city networks scheduled to become operational in early 1999. MCI WorldCom also has announced that it will spend over $800 million to more than double the size of its European backbone network and to install local network facilities in another dozen cities. New York-based Viatel is one of the largest operators of alternative pan-European networks. Viatel successfully obtained over $800 million in financing earlier this year to construct the Circe pan-European broadband fiber optic network connecting thirteen cities in Belgium, the Netherlands, Germany, France, and the United Kingdom. It is expected to come online in the first quarter of 1999. Global Crossing, a U.S.-based venture, also has announced plans to build a $700 million Pan-European network, connecting 18 cities, to be completed in 1999.

In Mexico, AT&T and MCI WorldCom, combined, have invested close to $2 billion in joint ventures, promising customers cheaper and more efficient services. Although AT&T and MCI WorldCom's Mexican subsidiaries have faced significant problems competing in the Mexican market, they have managed to win 25% of Mexican long distance market. Other carriers, including Qwest Communications International, also have taken advantage of international expansion opportunities in Mexico. Qwest has obtained capacity in Mexico on a 1,500 mile fiber-optic network, to be completed this year, that links to 80% of the Mexican population.

In Latin America, MCI WorldCom recently paid $916 million for its 52% voting share of Embratel, the long distance carrier in Brazil. Given the large size of the Brazilian market (160 million people), the pent-up demand, and the strong growth of the Brazilian telecommunications market, this equity stake arrangement provides MCI WorldCom a significant entree into the Brazilian market.

Japan has taken substantial steps to liberalize its international telecommunications market by adopting a pro-competitive regulatory regime, licensing multiple competing foreign carriers, including MCI WorldCom and BT, and allowing international simple resale (ISR). MCI WorldCom is building a fiber-optic network in Tokyo, and has announced plans to lay an independent fiber optic network along side the existing trunk lines of incumbent NTT.

U.S. local telecommunications operators have opted to align themselves with foreign public telecommunications operators and launch into the global mobile market, especially in Europe. As of August 1998, Ameritech, Bell Atlantic, BellSouth, SBC, and GTE had a combined total of at least 60 individual investments in foreign telecommunications ventures. According to financial analyst reports, the current value of these international arrangements exceeds $15.2 billion. The actual investment surpasses $3.1 billion. Of these international alliances, more than 64% of the current value of the projects are based in Europe.

Finally, the Commission's new foreign participation rules, adopted to implement the United States' WTO commitments, significantly liberalized the policies for international telecommunications and satellite services. Since adopting the new rules last November, the Commission has granted over 700 applications to provide international service in the United States to foreign and domestic applicants. One hundred seventy-five of those applications were submitted by applicants with 10 percent or greater ownership by foreign entities. Of the 175 applications, 48 were granted to foreign telecommunications carriers to enter the U.S. market, 18 of which were from foreign dominant carriers. Attachment 4 contains a list of those applications.

The Commission also expedited its processing of applications to provide switched services over private lines (also known as international simple resale or ISR). Prior to adoption of the new foreign participation rules, the International Bureau had authorized the provision of ISR only to five countries -- Canada, the United Kingdom, Sweden, Australia and New Zealand. Since the new rules were adopted, the Bureau has authorized the provision of ISR on an additional eleven international routes -- the Netherlands, Luxembourg, Norway, Denmark, France, Germany, Belgium, Austria, Switzerland, Japan, and Italy -- allowing ISR on routes that cover 42% of U.S. international traffic minutes.

E. World telecom revenues handled by monopoly providers, selected new entrants

1997 revenue data for the top 10 largest public telecommunications operators (PTOs) are contained in Attachment 1. Revenue data are unavailable for the full calendar year 1998, but data for the first-half of 1998 are included. First quarter 1998 revenues and revenue growth figures for non-incumbent multinational carriers are contained in Attachment 2.

Revenue trends indicated by the annual data for PTOs are unavailable, since 1998 annual data and reliable income projections are unavailable. First quarter revenue data and growth rates over the previous year for emerging multinational carriers, however, are available.

F. Change in dominant carriers' market share in countries that are party to the WTO Agreement

Approximate long distance service (including international) market share for selected markets:

		1/98	11/98
United Kingdom	British Telecommunications	64%	60%
Germany	Deutsche Telekom	100	80[2]
Sweden	Telia	69[1]	n/a
Finland	Telecom Finland	66[1]	n/a
Japan	KDD	65[1]	n/a
Australia	Telstra	62[1]	n/a
Chile	Entel	37[1]	n/a
Mexico	Telmex	64[3]	66[3]
Canada	Bell Canada	63[4]	62[5]

[1] Source: Merrill Lynch, *Hong Kong Telecom, In Depth Report,* January 12, 1998
[2] Source: Bloomberg News, *Telekom Announces Next Tactic in Price War,* November 12, 1998 (available at www.totaltele.com).
[3] Source: Cofetel (international service market share only)
[4] Source: McCarthy Tetraúlt (Oct. 1998)
[5] Source: Solomon Smith Barney

G. International settlement rates

Settlement rates are the rates international carriers pay each other to complete international calls. One of the keys to lowering consumer prices is lowering the settlement rates U.S. carriers pay foreign carriers. Attachment 3 details U.S. settlement rates with carriers from WTO Member countries. Attachment 3 is separated into two parts: the first part provides data on WTO countries making full market access commitments effective in 1998; the second part provides data from countries with lesser commitments. The attachment notes that settlement rates with countries making full market access commitments declined by 23.9% since 1997. These countries account for 34% of total U.S. settlement outpayments to WTO countries. Settlement rates with carriers from all WTO countries making commitments declined by 16.2% since 1997. Settlement rates with carriers from WTO countries making lesser commitments have declined 16% since 1997. In addition, carriers in 21 countries currently conduct settlements with U.S. carriers at rates that are either at or below the relevant targets or "benchmark" levels established by the FCC in the *Benchmarks Order,* 12 FCC Rcd 19,806 (1997).

H. Interconnection charges

Comprehensive information on charges competing carriers are required to pay to interconnect directly with the incumbent operator and terminate international and domestic calls (interconnection charges) is available only for a limited number of international markets. Only countries with liberalized telecommunications markets, in general, have published information on interconnection charges. Further, in some countries, interconnection charges are the subject of privately negotiated intercarrier agreements and may not be made public. Below are listed national interconnection charges for selected countries.

In general, international interconnection rates are available only for traffic delivered directly to the international gateway switch by the originating carrier. Traffic exchanged according to the traditional bilateral settlements process is subject to settlement rates.

Interconnection charges (in U.S. cents)

<u>Europe</u>

Listed below are mandated per-minute interconnection rates that apply to national interconnection with the incumbent carrier.

		Sept. 1997	May 1998
Austria		9.9¢	2.8¢
Belgium		4.3	3.5
Denmark		2.6	2.6
Finland		5	3.3
France	3	3	
Germany		3	3
Greece		n/a	3
Italy		2.9[1]	5.1[2]
Ireland		n/a	6.1
Luxembourg		n/a	2.3
Netherlands		3	2.4
Portugal		n/a	21.3
Spain		5	5
Sweden		3.5	2.8
U.K.		2	2

National interconnection rates are "double-transit" interconnection rates established under E.U. guidelines. Double transit interconnection rates paid to the incumbent carrier apply to the termination of traffic throughout the country. Single transit interconnection rates apply to the termination of traffic only within a specific region.

[1] Single transit interconnection rates; double transit interconnection rates not established
[2] Proposed double transit interconnection rate.

Source: Porte-Parole, *Falling Cost of Fixed Network Telecommunications in Europe*, July 1998.

Asia Pacific

Listed below are international interconnection rates:

Australia (Aug. '97):	2¢/min peak, 1¢/min off-peak[1]
New Zealand (Nov. '96):	2¢/min peak, 1¢/min off-peak[1]
Japan (March 1998):	1.7¢/min (¥6.19 for 3 first minutes)
Hong Kong (Sept. 1998):	4.5¢/min (proposed)

[1] Peak periods are generally weekday daytime hours, and off-peak periods are generally evening and weekends.

Source: respective governments

Latin America

Mexico:

1997: 2.5¢/min (only for domestic calls)
1998: 2.3¢/min (only for domestic calls)

Note: These interconnection rates are established by government regulation. In addition to interconnection charges, carriers may be required to pay additional per minute charges. For 1997 and 1998, international carriers must pay additional charges to the terminating carrier.

Chile:

Interconnection charge for incoming international call:	32¢/min
Interconnection charge for outgoing international call:	2-3¢/min
Interconnection charge for terminating domestic long distance call:	6¢/min

Note: Government regulations set interconnection charge ceilings for the period 1994 to 1998; actual market rates may be below the government-set rates.

Peru:

The interconnection rate is to be negotiated between carriers with resort to arbitration by the regulator in the event of disagreement. In the event of arbitration, the interconnection charge benchmark will be used. The benchmark, recently set by OSIPTEL, the regulator, is 2.9¢/min for domestic and international calls.

I. Countries with transparent and objective interconnection rules

Based on anecdotal information currently available to the Commission, it appears that the following countries have adopted publicly available objective and nondiscriminatory interconnection rules for switched basic telecommunications service. It should be noted, however, that there remain significant problems in many of these countries concerning interconnection rates and license classifications.

<u>Europe</u>
Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Italy, Luxembourg, Norway, Netherlands, Spain, Sweden, Switzerland, United Kingdom

<u>Asia Pacific</u>
Japan, Hong Kong, Australia, New Zealand, Philippines, Korea

<u>Americas</u>
Argentina, Chile, Canada, Colombia, Dominican Republic, El Salvador, Guatemala, and Mexico

J. Data on teledensity in foreign countries and use of international telecommunications services

Attachment 5 provides teledensity information (telephone lines per 100 inhabitants) for WTO member countries. It includes actual teledensity data for 1996 and projected teledensity data for 1997 and 1998. Actual data for 1997 and 1998 will be available in the first quarter of 1999 and 2000, respectively. The data show that teledensity is projected to increase significantly in most WTO countries.

Attachment 6 provides information on foreign and U.S. billed traffic for 1997, as reported by U.S. carriers. 1998 data are currently unavailable, but preliminary data for 1998 should be available in early 1999. The 1997 data are intended as a baseline for use as comparison to subsequent years.

II. Satellite Telecommunications Information

A. Annual revenue by operator

The satellite services sector of the telecommunications market is growing rapidly and continues to diversify its service offerings. The Satellite Industry Association (SIA), which represents the U.S. commercial satellite industry, estimates that over 1,000 new commercial satellites will be built and launched over the next decade. The new satellite systems will bring business and other consumers a wide variety of new broadband and mobile voice and data services and will connect users in countries around the globe.

According to SIA, total revenue in 1997 for the commercial satellite industry exceeded $51 billion, and annual revenue growth is expected to average 15-20 % over the next decade. Attachment 7 details 1997 revenue data for 30 representative global and regional satellite companies.

B. Services provided to WTO countries by representative U.S. satellite systems

Attachment 8 profiles the global presence of three satellite companies offering mobile satellite service (voice/data and data-only) and fixed satellite service in WTO-member country markets. These data are not exhaustive and were collected from public sources.

C. Information regarding U.S.-based satellite operator presence in foreign markets and other market entry issues

<u>**General**</u>

The Satellite Industry Association (SIA) supports the WTO Agreement on telecommunications services. SIA states that the WTO Agreement has set an important benchmark for opening markets to satellite services around the world. Its members report that many countries--particularly in Latin America and, increasingly, in Europe, Africa, and Asia--have liberalized their regulations. SIA members have reported that many countries now: permit multiple entities to obtain licenses to provide voice, data, or video services for their own use or for third-party use; permit ownership and operation of private earth station equipment; and to permit choice in providers of satellite capacity. Many countries allow licensed radio and television broadcasters and cable television providers to own their own transmission broadcast facilities and to purchase satellite capacity without restriction.

In addition, SIA members emphasized the importance of countries such as Mexico and Argentina entering into bilateral accords with the United States for services not covered by the WTO Agreement, thereby accelerating access to their markets for satellite services.

Satellite companies continue to view the WTO Agreement as a positive force in the development and growth of the satellite industry. In fact, many satellite manufacturers are changing satellite designs to increase the coverage area of various satellite system configurations based on the assumption that future continued success on the regulatory front will result in market access when satellites are eventually launched.

Fixed Satellite Service

In order to facilitate the provision of service to the European market, U.S. Fixed Satellite Service (FSS) providers have entered into partnerships, such as the Loral/Alcatel Europestar system and Lockheed Martin Intersputnik, where they are joint owners of European satellite assets. U.S. companies state that an increased regional presence often aids in navigating the regulatory environment in Europe.

There have been reports of some difficulties, however, in delivery of satellite services to the North and South American geographical regions. An FSS provider stated that market access in Mexico will be forthcoming as soon as the Solidaridad Satellite is launched by SatMex. In other Latin American countries, national governments require FSS service providers to pay high annual fees, possibly more than needed to offset the procedural costs of regulating U.S. satellite services.

One FSS service provider has stated that ten months since the WTO Basic Telecommunications Agreement took effect, at least one regional organization and several independent regulators have developed an open and transparent regulatory framework and have formally solicited industry and FCC views on how to establish appropriate licensing policies for telecommunications services, and for satellite services in particular. Many more countries have informally solicited industry views on telecommunications policies that facilitate market entry and investment. Others have gone even further and opened up new telecommunications sectors, like cellular telephony, under open and competitive regulatory regimes. These developments will help ensure that FSS service providers will be dealing with regulators that are experienced with and committed to a competitive private telecommunications sector.

FSS providers claim that many regulators want broadband capacity in exchange for providing access to domestic markets for basic as well as advanced interactive communications. Regulators are particularly interested in the availability of FSS service providers' products in areas that would be uneconomical to serve via terrestrial broadband networks. Assuming that spectrum is available in a given country, the providers do not at this time anticipate great difficulties in obtaining access to markets for its services. In one example, in applying to operate in the Ka band, an FSS provider intentionally selected a band in which few services were deployed and ample spectrum was available to support the services proposed by the company. Several countries are considering or have adopted measures to ensure the domestic availability of spectrum for FSS services.

Mobile Satellite Service

Extrapolating from public documents and individual company data, Mobile Satellite Service (MSS) operators report varying degrees of success in obtaining licenses to provide in-country service. Though each country has its own process for reviewing and granting telecommunications licenses, depending on the level of privatization and the phase of liberalization, there are currently a number of countries committed to developing a reliable licensing procedure and instituting a predictable decision-making timetable.

Moreover, one MSS system operator indicated that, in Europe, the WTO Agreement has been a positive force behind a new "harmonized" use of the radio spectrum throughout the 43 members of the Council of European Post and Telecommunications (CEPT) authorities. This harmonized approach may indicate the interest of CEPT members in creating a very large and homogeneous market for telecommunications services and equipment. CEPT has implemented an extensive review process to consider the frequency bands proposed by the applicants prior to licensing the systems. CEPT's integrated approach enables companies to seek individual country licenses with the benefit of a regional designated frequency plan and approved technical standards, rather than face the delay that would result if country by-country coordination were required.

ATTACHMENT 1

PUBLIC TELEPHONE OPERATORS (PTOS)

PUBLIC TELEPHONE OPERATORS	1997 REVENUES IN $M	1998 REVENUES IN $M FOR 1ST HALF OF 1998 UNLESS NOTED
NTT	72,873	71,591
AT&T	51,319	25,489
Deutsche Telekom	38,967	19,111
Bell Atlantic	30,368	12,861
British Telecom	26,275	7,077
France Telecom	26,033	12,861
Telecom Italia	25,009	12,311
SBC	24,856	13,015
GTE	23,260	12,162
Bell South	20,633	11,090
MCI	19,653	10,658
Telstra Entity	16,477	17,069
Ameritech	15,988	8,422
Sprint	14,874	7,878
Telebras	14,157	N/A
U.S. West	10,319	6,062
KDD	3,314	2,764
Telefonica-Argentina	2,996	N/A
Telefonica - Peru	1,432	691

Notes:
The chart is based on information provided by Legg Mason, including their footnotes as follows:
Data for NTT are based on Japanese accounting principles; fiscal year ends 3/31/98.
Data were obtained from NTT's website.
Data for Deutsche Telekom (DT) were obtained from the company's website.
Data for Telecom Italia were obtained from Quote.com.
Data for SBC were obtained from SBC's statistical profile; reflects normalized results on $1.76 in diluted earnings per share on a post-split basis, and includes long-term number portability (LNP) expenses incurred of $197 million ($70 million at Southwestern Bell and $118 million) or $0.60 per share.
Note all data (above) were downloaded from Factset Research Systems, Inc. unless otherwise noted.
Additional footnotes besides those of Legg Mason include the following:
Data for 1998 (in revenues) for British Telecom are for 1st quarter.
Data for 1998 (in revenues) for NTT and KDD are for a full year from FY 4/1/97-3/31/98.
Data for the first half of 1998 (in revenues) for Telecom Italia were obtained from Salomon Smith Barney.
Data for Telstra were obtained from Telstra's annual report. Numbers are for year ended 6/30/97 and 6/30/98.
Data for KDD were obtained from Salomon Smith Barney in Japan; fiscal year ends 3/31.
NTT, DT, Telekom Italia, and KDD data have been converted into U.S. dollars using the average 1997 exchange rates from the Federal Reserve Statistical Release.
The 1998 exchange rates for NTT and KDD are based on 132 Yen for March 1998 cited in NTT's annual report.
The 1998 exchange rates for DT and Telekom Italia are based on the 6/30/98 exchange rates from the Federal Reserve Statistical Release.
N/A means not available.
Numbers may be variable due to fluctuations in exchange rates and particular economic country conditions in which PTOs are operating.

ATTACHMENT 2

NON-INCUMBENT MULTINATIONAL CARRIERS -- U.S. AND FOREIGN
1st Quarter 1998 Revenue

NON-INCUMBENT MULTINATIONAL CARRIERS	$M	Annual Growth
WorldCom (R)	$2,350	38%
Teleglobe (W)	$375	26%
RSL Communications (R)	$132	212%
Star Telecom (W)	$129	52%
Primus Telecom Group (R)	$118	24%
Pacific Gateway Exchange (W)	$105	104%
IDT Corporation (W)	$87	153%
Telegroup (R)	$86	16%
Global Telesystems (R)	$78	54%
COLT Telecom Group (R)	$59	134%
Esprit Telecom Group (R)	$24	36%
Energis (N/A)	$66	57%
Global TeleSystems Group (N/A)	$31	41%
Equant (N/A)	>$200	200%

Notes:
(R) - Retail focused
(W) - Wholesale focused
(N/A) - not available

Source: Company Reports - 1Q 1998 unless otherwise noted.
Produced in BTAlex Brown Research, "Turf War on A Global Scale V.2.0," May 29, 1998.
Data for Energis were obtained from Energis website (http://www.energis.com). Reflects first 6 months of 1998.
Data for Global TeleSystems (GTS) were obtained from GTS website (http:// www.gtsgroup.net).
Data for Equant were obtained from Equant's website (http://www.equant.com). Reflects 1997 revenues.

Esprit financials for 2nd quarter 1998;
IDT financials for 3rd Quarter 1998;
In February of 1998, Primus announced an offer to acquire Trescom International. Therefore, Primus' revenue for the first quarter takes into account the revenue mix of both businesses.
Global Telesystems data represent combined company.

ATTACHMENT 3

U.S. SETTLEMENT RATES WITH WTO MEMBER COUNTRIES

Group A: Countries with Full Market Access Commitments
Effective 1998

COUNTRY	1996	1997	1998	Benchmark Rate	Effective Date
Australia	$0.225	$0.210	$0.150	$0.15	1/1/99
Austria	$0.215	$0.205	$0.135	$0.15	1/1/99
Belgium	$0.280	$0.185	$0.135	$0.15	1/1/99
Canada	$0.110	$0.100	$0.100	$0.15	1/1/99
Chile	$0.500	$0.500	$0.360	$0.19	1/1/00
Denmark	$0.145	$0.135	$0.110	$0.15	1/1/99
Dominican Republic	$0.450	$0.350	$0.300	$0.19	1/1/01
El Salvador	$0.550	$0.440	$0.385	$0.19	1/1/01
Finland	$0.255	$0.205	$0.160	$0.15	1/1/99
France	$0.175	$0.130	$0.105	$0.15	1/1/99
Germany, Federal Rep. of	$0.115	$0.100	$0.105	$0.15	1/1/99
Guatemala	$0.500	$0.450	$0.385	$0.19	1/1/01
Iceland	$0.470	$0.375	$0.240	$0.15	1/1/99
Italy	$0.260	$0.165	$0.110	$0.15	1/1/99
Japan	$0.455	$0.430	$0.145	$0.15	1/1/99
Korea, Republic of	$0.615	$0.490	$0.425	$0.19	1/1/00
Luxembourg	$0.290	$0.135	$0.135	$0.15	1/1/99
Malaysia	$0.445	$0.395	$0.395	$0.19	1/1/00
Mexico	$0.485	$0.395		$0.19	1/1/00
Netherlands	$0.180	$0.135	$0.095	$0.15	1/1/99
New Zealand	$0.215	$0.135	$0.135	$0.15	1/1/99
Norway	$0.145	$0.110	$0.080	$0.15	1/1/99
Philippines	$0.500	$0.500	$0.360	$0.19	1/1/01
Spain	$0.320	$0.240	$0.135	$0.15	1/1/99
Sweden	$0.085	$0.060	$0.060	$0.15	1/1/99
Switzerland	$0.255	$0.170	$0.135	$0.15	1/1/99
United Kingdom	$0.110	$0.070	$0.060	$0.15	1/1/99
Group A:					
Average Settlement Rate	**$0.309**	**$0.252**	**$0.190**		
Percent Change		**-18.4%**	**-24.7%**		

The service providers are negotiating settlement rates for service between the United States and Mexico during 1998.

ATTACHMENT 3

U.S. SETTLEMENT RATES WITH WTO MEMBER COUNTRIES

Group B: Countries without Full Market Access Commitments
Effective 1998

COUNTRY	1996	1997	1998	Benchmark Rate	Effective Date
Antigua	$0.500	$0.455	$0.405	$0.19	1/1/00
Argentina	$0.715	$0.425	$0.350	$0.19	1/1/00
Bangladesh	$1.000	$0.800	$0.800	$0.23	1/1/03
Belize	$0.710	$0.600	$0.475	$0.19	1/1/01
Bolivia	$0.625	$0.550	$0.460	$0.19	1/1/01
Brazil	$0.515	$0.425	$0.325	$0.19	1/1/00
Brunei	$0.725	$0.475	$0.410	$0.15	1/1/99
Bulgaria	$0.500	$0.450	$0.350	$0.19	1/1/01
Colombia	$0.625	$0.500	$0.500	$0.19	1/1/01
Cote d'Ivoire	$1.100	$1.100	$0.985	$0.23	1/1/03
Czech Republic	$0.360	$0.305	$0.275	$0.19	1/1/00
Dominica	$0.500	$0.405	$0.405	$0.19	1/1/01
Ecuador	$0.550	$0.500	$0.500	$0.19	1/1/01
Ghana	$0.500	$0.500	$0.500	$0.23	1/1/03
Greece	$0.505	$0.430	$0.275	$0.19	1/1/00
Grenada	$0.500	$0.405	$0.405	$0.19	1/1/01
Hong Kong	$0.470	$0.395	$0.305	$0.15	1/1/99
Hungary	$0.505	$0.305	$0.275	$0.19	1/1/00
India	$0.800	$0.710	$0.640	$0.23	1/1/02
Indonesia	$0.700	$0.650	$0.525	$0.19	1/1/01
Ireland	$0.175	$0.165	$0.115	$0.15	1/1/99
Israel	$0.590	$0.350	$0.295	$0.15	1/1/99
Jamaica	$0.650	$0.625	$0.625	$0.19	1/1/01
Mauritius	$0.750	$0.750	$0.750	$0.19	1/1/00
Morocco	$0.725	$0.545	$0.410	$0.19	1/1/01
Pakistan	$1.100	$1.000	$0.600	$0.23	1/1/02
Papua New Guinea	$0.795	$0.615	$0.615	$0.19	1/1/01
Peru	$0.615	$0.500	$0.350	$0.19	1/1/01
Poland	$0.475	$0.350	$0.275	$0.19	1/1/01
Portugal	$0.415	$0.300	$0.197	$0.15	1/1/99
Romania	$0.755	$0.615	$0.520	$0.19	1/1/01
Senegal	$1.300	$1.300	$0.690	$0.23	1/1/03
Singapore	$0.450	$0.425	$0.355	$0.15	1/1/99
Slovak Republic	$0.650	$0.340	$0.290	$0.19	1/1/01
South Africa	$0.500	$0.500	$0.400	$0.19	1/1/00
Sri Lanka	$1.000	$1.000	$0.800	$0.23	1/1/02
Thailand	$0.750	$0.600	$0.525	$0.19	1/1/01
Trinidad & Tobago	$0.650	$0.575	$0.500	$0.19	1/1/00
Tunisia	$0.775	$0.470	$0.480	$0.19	1/1/01
Turkey	$0.580	$0.410	$0.375	$0.19	1/1/01
Venezuela	$0.575	$0.490	$0.400	$0.19	1/1/01
Group B:					
Average Settlement Rate	**$0.651**	**$0.544**	**$0.457**		
Percent Change		**-16.4%**	**-16.0%**		
All WTO Member Countries:					
Average Settlement Rate	**$0.515**	**$0.428**	**$0.353**		
Percent Change		**-16.9%**	**-17.5%**		

ATTACHMENT 4

APPLICATIONS GRANTED TO DOMINANT FOREIGN TELECOMMUNICATIONS CARRIERS DURING 1998 TO PROVIDE INTERNATIONAL SERVICE IN THE UNITED STATES

Applicant	Country in which affiliate possesses market power
Cable & Wireless (3)	Hong Kong, various Caribbean countries
BC Tel	British Coluimbia, Canada
KDD(2)	Japan
KPN US (2)	The Netherlands
Korea Telecom	Korea
NTTA	Japan
Swisscom	Switzerland
Telenor	Norway
TLD	Spain, Argentina, Peru, Chile
TeleDanmark	Denmark
Unisource(2)	Joint venture of several European carriers
Singtel	Singapore
Telecom Eirann	Ireland

ATTACHMENT 5

FOREIGN & US BILLED WTO COUNTRY TRAFFIC

WTO COUNTRY	1997 FOREIGN BILLED MINUTES (calls to the U.S.)	1997 US BILLED MINUTES (calls from the U.S.)
Antigua & Barbuda	7,115,819	55,311,886
Argentina	38,596,380	233,542,337
Australia	131,569,530	385,643,026
Austria	24,951,748	60,400,263
Barbados	12,667,958	40,588,423
Bangladesh	4,469,719	60,598,626
Belgium	50,477,727	126,308,311
Belize	4,170,792	14,864,579
Bolivia	5,385,806	34,896,924
Brazil	159,248,397	511,809,465
Brunei Darussala	685,163	2,414,018
Bulgaria	1,344,957	12,951,806
Canada	3,141,942,119	3,946,022,569
Chile	61,028,462	114,665,989
Colombia	67,640,760	270,484,558
Cote d'Ivoire	2,772,729	16,062,515
Czech Republic	8,815,481	27,225,111
Denmark	32,961,752	77,546,831
Dominica	2,212,662	17,518,208
Dominican Republic	107,814,941	385,123,604
Ecuador	17,413,209	186,386,736
El Salvador	12,743,151	154,679,803
Finland	17,787,971	30,613,320
France	216,746,922	511,578,357
Germany	325,240,908	1,010,646,629
Ghana	5,240,219	51,220,720
Greece	35,148,254	97,898,769
Grenada	2,375,226	17,530,455
Guatemala	15,375,065	126,137,217
Hong Kong	78,379,209	675,303,073
Hungary	14,863,885	41,228,672
Iceland	6,918,811	10,857,097
India	49,707,870	581,319,260
Indonesia	28,175,746	123,122,642
Ireland	48,663,111	134,635,188
Israel	121,555,694	219,337,102
Italy	117,814,252	484,114,748
Jamaica	49,902,389	263,251,360
Japan	342,893,941	836,734,834
Korea, South	199,932,652	431,339,861
Luxembourg	6,154,177	11,404,151
Malaysia	23,602,566	84,996,054
Mauritius	487,927	9,116,335
Mexico	942,158,920	2,771,457,474

ATTACHMENT 5

WTO COUNTRY	1997 FOREIGN BILLED MINUTES (calls to the U.S.)	1997 US BILLED MINUTES (calls from the U.S.)
Morroco	5,808,115	13,382,844
New Zealand	37,596,723	111,385,613
Norway	52,504,621	67,400,215
Pakistan	10,518,252	188,745,754
Papua New Guinea	662,939	2,428,647
Peru	24,500,128	168,669,037
Philippines	33,363,428	439,622,439
Poland	27,311,276	171,797,545
Portugal	14,972,676	55,259,405
Romania	5,248,333	29,454,815
Senegal	1,717,016	22,107,807
Singapore	61,419,122	198,879,121
Slovak Republic	3,335,617	10,692,450
South Africa	31,119,827	112,307,026
Spain	85,309,869	194,802,682
Sri Lanka	1,987,980	16,889,732
Suriname	868,592	10,870,867
Sweden	185,679,847	143,579,530
Switzerland	98,017,798	226,190,086
Thailand	26,280,859	128,238,445
Trinidad & Tobago	29,319,430	96,122,104
Tunisia	1,513,284	4,446,046
Turkey	24,986,937	62,826,129
Uganda	703,254	5,133,707
United Kingdom	945,523,505	1,556,168,825
Venezeula	59,069,810	222,699,049

Notes:

All data are compiled from the FCC 1997 Annual Data SECTION 43.61 International Traffic Data for ALL U.S. POINTS: All Settlement Arrangements.

ATTACHMENT 6

TELEDENSITY IN WTO MEMBER COUNTRIES

WTO COUNTRY	TELEDENSITY 1996 ACTUAL	TELEDENSITY 1997 PROJECTION	TELEDENSITY 1998 PROJECTION
Antigua & Barbuda	42.34	58.42	80.63
Argentina	17.38	18.94	20.64
Australia	51.88	52.91	53.98
Austria	46.89	47.21	47.54
Barbados	36.99	39.58	42.35
Bangladesh	0.26	0.28	0.3
Belgium	46.52	47.45	48.4
Belize	13.33	13.33	13.33
Bolivia	4.32	4.32	4.32
Brazil	9.57	12.24	15.67
Brunei Darussala	26.26	28.62	31.2
Bulgaria	31.26	31.88	32.52
Canada	60.24	61.44	62.67
Chile	15.59	18.4	21.71
Colombia	11.76	13.88	16.38
Cote d'Ivoire	0.88	0.96	1.05
Czech Republic	27.31	31.4	36.11
Denmark	61.79	62.4	63.02
Dominica	26.39	27.7	29.09
Dominican Republic	8.26	9.33	10.54
Ecuador	7.33	8.2	9.18
El Salvador	5.61	5.94	6.3
Finland	54.9	54.9	54.9
France	56.36	56.92	57.49
Germany	53.84	58.68	63.96
Ghana	0.44	0.55	0.69
Greece	50.87	52.4	53.97
Grenada	24.34	24.34	24.34
Guatemala	3.13	3.6	4.14
Hong Kong	54.69	56.33	58.02
Hungary	26.06	36.74	51.8
Iceland	57.61	59.91	62.31
India	1.54	1.83	2.18
Indonesia	2.13	2.68	3.38
Ireland	39.48	42.64	46.05
Israel	44.09	46.73	49.53
Italy	44.01	44.89	45.79
Jamaica	14.17	17.43	21.44
Japan	48.92	49.02	49.12
Korea	43.04	44.77	46.56

ATTACHMENT 6

WTO COUNTRY	TELEDENSITY 1996 ACTUAL	TELEDENSITY 1997 PROJECTION	TELEDENSITY 1998 PROJECTION
Luxembourg	59.16	62.12	65.23
Malaysia	18.32	20.33	22.57
Mauritius	16.21	20.1	24.92
Morroco	4.6	4.88	5.17
Netherlands	54.33	55.96	57.64
New Zealand	49.92	51.92	54
Norway	55.55	55.55	55.55
Pakistan	1.77	1.91	2.06
Papua New Guinea	1.07	1.13	1.20
Peru	5.99	7.6	9.65
Philippines	2.49	2.96	3.52
Poland	16.91	19.28	21.98
Portugal	37.49	38.99	40.55
Romania	13.98	14.96	16.01
Senegal	1.11	1.25	1.41
Singapore	51.33	54.92	58.76
Slovak Republic	23.19	25.74	28.57
South Africa	10.05	10.65	11.29
Spain	39.25	40.03	40.83
Sri Lanka	1.39	2.74	5.40
Suriname	13.16	15.4	18.02
Sweden	68.21	68.29	68.36
Switzerland	64.04	66.6	69.26
Thailand	7	8.33	9.91
Trinidad & Tobago	16.81	17.65	18.53
Tunisia	6.43	7.07	7.78
Turkey	22.36	23.7	25.12
Uganda	0.24	0.34	0.49
United Kingdom	52.76	55.4	58.17
United States	63.99	65.27	66.58
Venezeula	11.74	12.44	13.19

Notes:

Main telephone lines per 100 inhabitants are based on International Telecommunication Union data for 1995 and 1996.

The 1997 and 1998 projections are based on percentage of change from 1995-1996.

In cases where the percentage of change was negative, the 1996 actual figure is used for 1997 and 1998 projections.

ATTACHMENT 7

Representative Satellite Service Provider Revenue (1997)

($U.S. millions)

Satellite Company	Revenue
Hughes Electronics	$5,128.3
Canal+	$2,253.7
BSkyB	$2,114.6
QUALCOMM Inc.	$2,096.4
Audiofina	$1,508.3
Loral Space & Communications	$1,312.6
PanAmSat Corporation	$629.9
Orbital Sciences	$606.0
Comsat	$562.7
TCI Satellite Entertainment	$562.0
United Video Satellite	$507.6
Societe Europeenne des Satellites	$489.7
EchoStar	$477.4
United States Satellite Broadcasting	$384.8
Trimble Navigation	$272.3
AsiaSat	$128.6
Pegasus	$86.8
Gilat Satellite Networks	$74.1
APT Satellite	$67.4
ViaSat, Inc.	$64.2
STM Wireless	$52.1
SSE Telecom Inc.	$45.8
American Mobile Satellite	$44.2
Shinawatra Satellite	$39.9
Globecomm	$36.2
Pasifik Satelit Nusantara	$14.8
CD Radio	negligible or negative
Globalstar Telecommunications	negligible or negative
ICO Global Communications	negligible or negative
Iridium World Communications	negligible or negative

Sources:

Merrill Lynch

Barclays Capital

Wall Street Journal (www.wsj.com)

ATTACHMENT 8

Satellite Service Provider Representative Market Access in WTO Member Countries

COUNTRY	MSS Service Provider 1	MSS Service Provider 2	FSS Service Provider
Argentina	Licensed	Licensed	Authorized
Australia	Licensed	Expected authorization	Authorized
Austria			Authorized
Bangladesh			Pending
Belgium			Authorized
Bolivia			Pending
Brazil	Licensed	Expected authorization	Authorized
Bulgaria			Authorized
Canada	Licensed	Licensed	
Chile		Expected authorization	Authorized
Colombia	Licensed		Authorized
Costa Rica			Pending
Czech Republic			Authorized
Denmark			Authorized
Dominican Rep.			Pending
Ecuador			Authorized
El Salvador			Authorized
Fiji	Licensed		
Finland			Authorized
France			Authorized
Germany		Expected authorization	Authorized
Greece			Authorized
Guatemala	Licensed		Authorized
Honduras			Authorized
Hong Kong, China			Authorized
Hungary			Authorized
India			Authorized
Indonesia			Pending
Ireland		Expected authorization	Authorized
Italy	Experimental	Expected authorization	Authorized
Jamaica			Authorized
Japan	Experimental	Licensed	Pending
Korea, Rep. of	Licensed	Expected authorization	Pending
Luxembourg			Authorized
Malaysia	Licensed	Licensed	
Maldives	Partial License		
Malta			Authorized
Mexico		Expected authorization	Authorized
Morocco		Licensed	Pending
Namibia		Licensed	
Netherlands			Authorized
New Zealand	Licensed		Authorized
Nicaragua			Pending
Pakistan			Pending
Panama			Pending
Paraguay			Pending
Peru		Expected authorization	Authorized
Philippines			Authorized
Poland			Authorized
Portugal			Authorized
Romania			Authorized
Senegal	Licensed		
Singapore			Authorized
Slovak Republic			Authorized
Slovenia			Authorized
Spain		Expected authorization	Authorized
Sri Lanka			Authorized
Sweden		Expected authorization	
Switzerland		Expected authorization	Authorized
Thailand			Pending
Turkey			Authorized
United Kingdom	Experimental	Expected authorization	Authorized
United States	Licensed	Licensed	Authorized
Uruguay			Pending
Venezuela	Licensed	Expected authorization	Authorized

Sources: Company correspondence, Merrill Lynch